DC Milliammeter
Model BS

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INSTRUMENT INSTRUCTIONS

Model BS

SENSITIVE RESEARCH
INSTRUMENT CORPORATION
NEW ROCHELLE, N.Y.

Symbol of Quality

ELECTRICAL INSTRUMENTS OF PRECISION SINCE 1927

Instrument No. 803772
803773

"SELF CHECKING"

DIRECT CURRENT

LABORATORY STANDARD

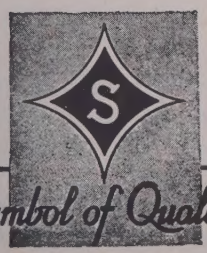
VOLT–AMP–MILLIAMMETER

MODEL BS

TYPE D'Arsonval

ACCURACY .05 of 1%

SCALE LENGTH 12 inches



SENSITIVE RESEARCH INSTRUMENT CORPORATION
NEW ROCHELLE, NEW YORK.

ELECTRICAL INSTRUMENTS OF PRECISION SINCE 1927

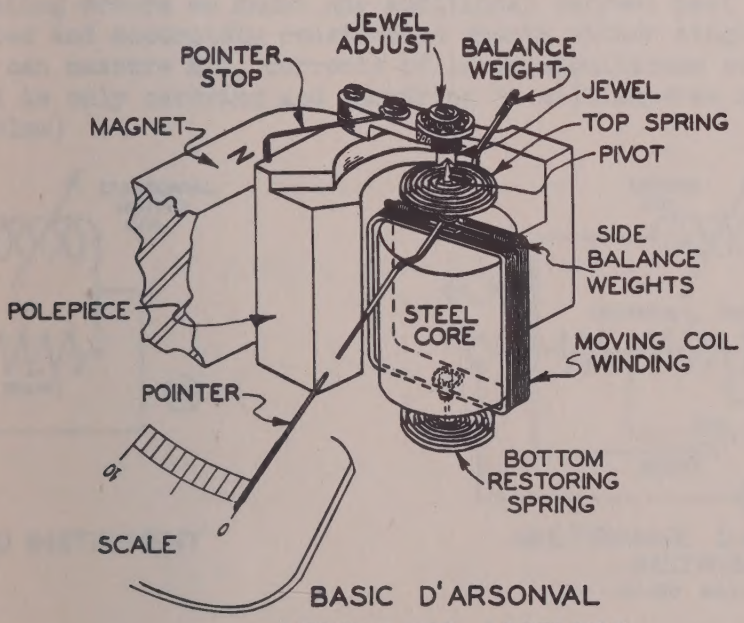
ELECTRICAL MEASURING INSTRUMENTS

D. C. CURRENT MEASUREMENTS

Almost all electrical measurements involve the detection or measurement of an electric current. An electric current can be measured by means of one or more of its physical effects;

1. Heating Effect
2. Chemical Effect
3. Magnetic Effect

Using the magnetic effect caused by a current flow, we can devise an accurate means of measurement. The oldest design of such a device is known as the D'Arsonval Moving Coil System. An elementary sketch of which is shown below.



BASIC D'ARSONVAL MOVING COIL ASSEMBLY

Its operation depends on the force exerted on a current carrying conductor shaped in a coil which is capable of rotation in the field of a permanent magnet.

When a D.C. current flows through this rotatable coil, it creates a field which interacts with the permanent magnet field and produces a torque.

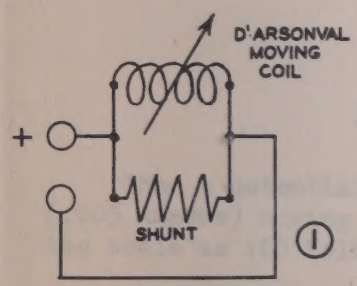
This torque is proportional to the magnet strength, the current in he moving coil and the number and area of the moving coil turns. The orque produced rotates the moving coil until its spiral springs are wound o sufficiently to produce an equal and opposite torque. When this point s reached the pointer deflection will be directly proportional to the urrent which produced it.

Essentially a D'Arsonval moving coil which in Sensitive Research nstruments, is rectangular in shape has a steel or diamond pivot at each nd which turns in spring mounted jewel bearings.

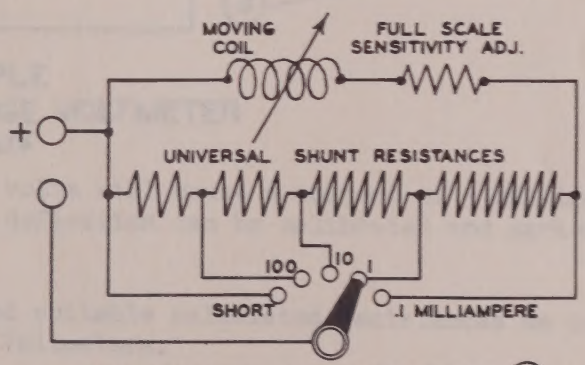
The D.C. current enters and leaves the moving coil usually through pirally constructed phosphor bronze springs which are coiled in opposite irections. These springs also provide the controlling force which opposes he deflecting force created by the current flow through the moving coil urns.

The accuracy of such an assembly to date is superior to any other nown type of current deflected mechanism for electrical measuring instru-ents.

As such a moving coil system will not usually carry over 30 milliamperes ithout heating errors we shunt any additional current past the moving coil. y calculated and accurately constructed shunts either singly or in a multiple ystem, we can measure D.C. currents of large magnititude even through the oving coil is only carrying and measuring 30 milliamperes or less. (See ircuits below)



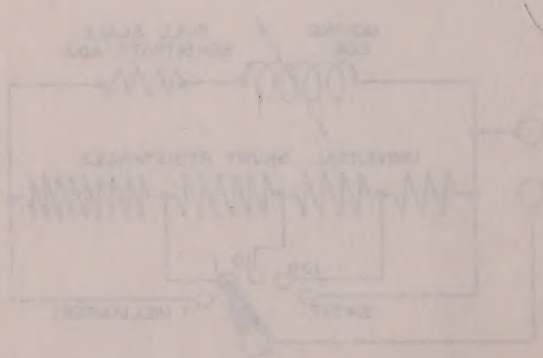
SHUNTED INSTRUMENT



MULTIRANGE D.C. CURRENT ② INSTRUMENT
.1-1-10-100 MILLIAMPERES

SENSITIVE RESEARCH has developed and improved during the past 31 years, he basic D'Arsonval moving coil system so that today we use it even in ur 1/20 of 1% LABORATORY STANDARD D.C. Instruments.

A D'Arsonval moving coil system will accurately measure when properly onstructed very minute D.C. currents down as low as .01 of one microampere .00000001) ampere, and indicate this small magnitude of current by a pointer n an indicating scale drawn in divisions-deflection. This extreme high ensitivity is unusual in portable indicating D.C. instruments.



D.C. VOLTAGE MEASUREMENTS

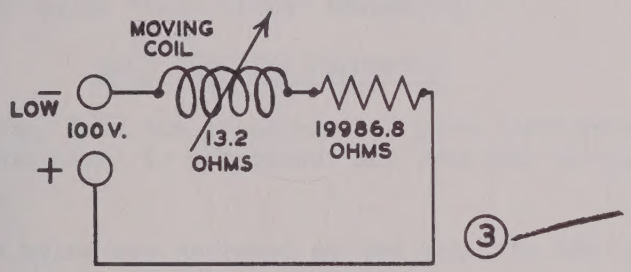
The D'Arsonval moving coil system movement, is a current measuring device but by following a principle of ohms law we can use this current measuring movement to measure D.C. voltage.

FOR EXAMPLE:

Assume we wish to measure 100 volts direct current. Also assume that we have a D'Arsonval movement that deflects full scale for 5 milliamperes with a resistance of 13.2 ohms. By Ohms Law 100 volts across a circuit of 20000 ohms will have a current flow of 5 milliamperes (.005 amperes) by:

$$R = \frac{E}{I} = \frac{100 \text{ Volts}}{.005 \text{ Amperes}} = 20000 \text{ Ohms}$$

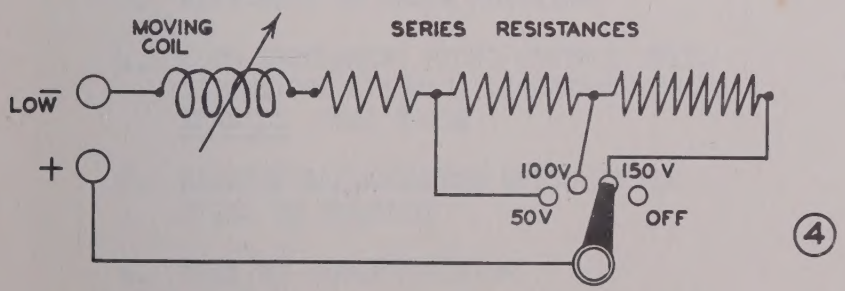
Now if we place our D'Arsonval moving coil (13.2 Ohm), in the circuit in series with 20000 Circuit Ohms-Less 13.2 Moving Coil Ohms-Equals 19986.8 Ohms.



SIMPLE
SINGLE RANGE VOLTMETER
100 VOLTS

Then a potential of 100 D.C. volts will cause a current of 5 milliamperes (.005 Ampere) moving coil pointer deflection can be calibrated and marked on the scale as 100 Volts.

Using the ohms law formula and suitable calculated resistances we can readily construct multirange D.C. Voltmeters.



MULTIRANGE D.C. VOLTMETER
50-100-150 VOLTS

MULTIRANGE D.C. VOLTMETER

50-100-150 VOLTS

ELECTRICAL MEASURING INSTRUMENTS

SPECIAL D.C. "SELF CHECKING" INSTRUCTIONS

PRELIMINARY PROCEDURE

Remove the wooden instrument dust cover. Level the instrument by raising or lowering its four adjustable legs. It is exactly horizontal when the air bubble, located on the instrument panel, is perfectly centered in the level indicator. Adjust if necessary the mechanical zeros of the instrument and its galvanometer. This is accomplished by slotted zero screws located on the panel near their movement's center.

If the instrument has not been used for some time it would be considered good instrument practice to rotate all rheostats and selector switches a few times, so the contacts could "self clean" themselves.

SELF CHECKING PROCEDURE

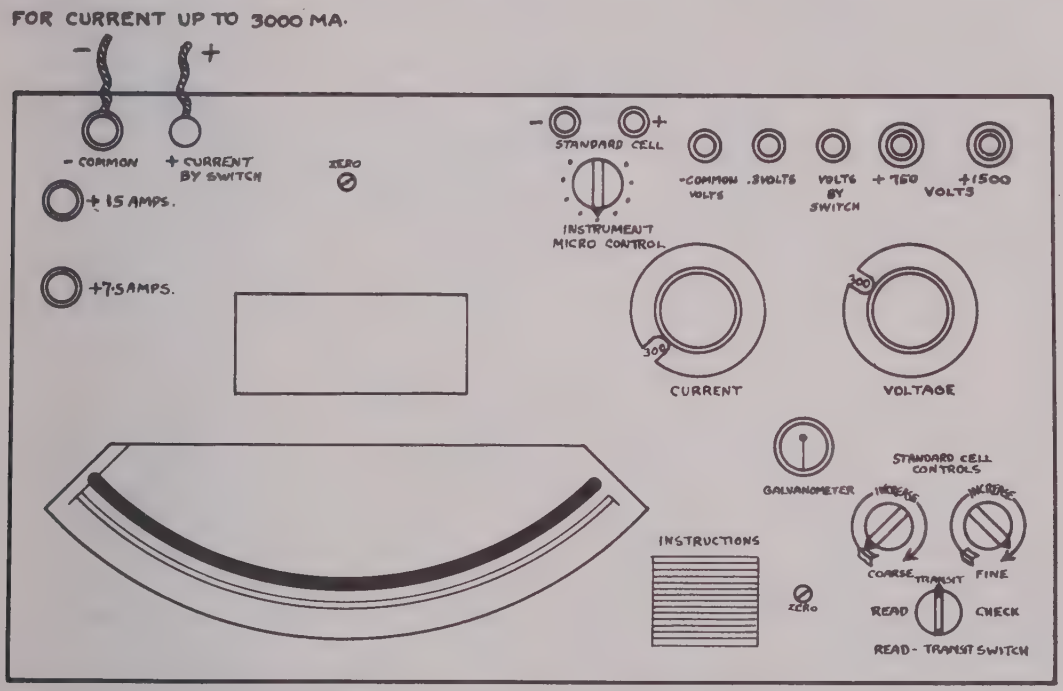
When Self-Checking, from the standpoint of good instrument practice it is advisable (but not necessary) to disconnect any external circuit from the instrument binding posts.

The instructions below are engraved on the panel to the left of the standard cell control knobs:

SELF CHECKING PROCEDURE

1. MOVE KNOB TO "CHECK POSITION
2. TURN COARSE & FINE CONTROLS UNTIL GALVANOMETER READS ZERO
3. KEEP KNOB ON CHECK POSITION
4. TURN INSTRUMENT MICRO CONTROL UNTIL LABORATORY STANDARD INSTRUMENT READS EXACTLY FULL SCALE
5. RECHECK GALVANOMETER WHICH SHOULD STILL BE BALANCED
6. TURN TO "READ" POSITION

When the check-transit-read switch is moved to its check position it sends a STANDARD CURRENT through the instrument when the galvanometer is balanced on zero by adjusting the fine and coarse standard cell rheostats. The instrument is then certified by adjusting the fine and coarse standard cell rheostats. The instrument is then certified by adjusting the INSTRUMENT MICRO CONTROL knob until the instrument pointer reads EXACTLY full scale. Keep the standard cell circuit balanced. This is evidenced by a ZERO deflection of the galvanometer. This procedure is very simple and only takes a few moments. After certifying, turn switch to its "read" position. The instrument is then ready for use.

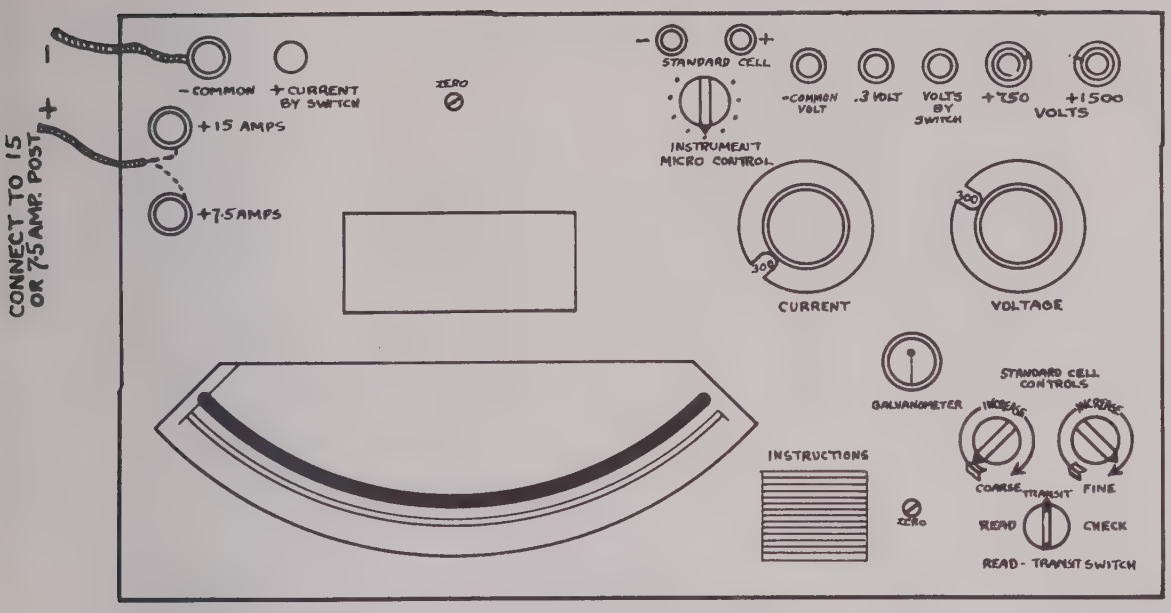


CURRENT MEASUREMENTS UP TO 3000 MILLIAMPERES

Turn the CURRENT RANGE SELECTOR SWITCH to the range desired. Connect to the binding posts as shown in above drawing and as marked on the instrument panel. Use the-COMMON large post and the smaller binding post to its right. It is suggested but not necessary that the VOLTAGE RANGE SELECTOR SWITCH be on its highest range (300 Volts).

CURRENTS UP TO 7.5 AND 15 AMPERES

Use the large - COMMON binding post and either the 7.5 or 15 AMPERE posts as required (See drawing next page.)



VOLTAGE MEASUREMENTS

External voltages may be connected to the instrument when self certifying, but it is not recommended. When "self checking," the instrument moving coil is not connected to any external circuit. To SELF CHECK turn "check-transit-read" switch to the "check" position and follow the engraved instructions on the panel, having the voltage range switch on the range switch on the range you intend using. Above 1 volt, it is not necessary to self check each time a new range is used. Current switch on highest range (3000 M.A.) suggested but not necessary, although, considered good instrument practice. After self checking the instrument turn switch to its "READ" position.

300 MILLIVOLT RANGE

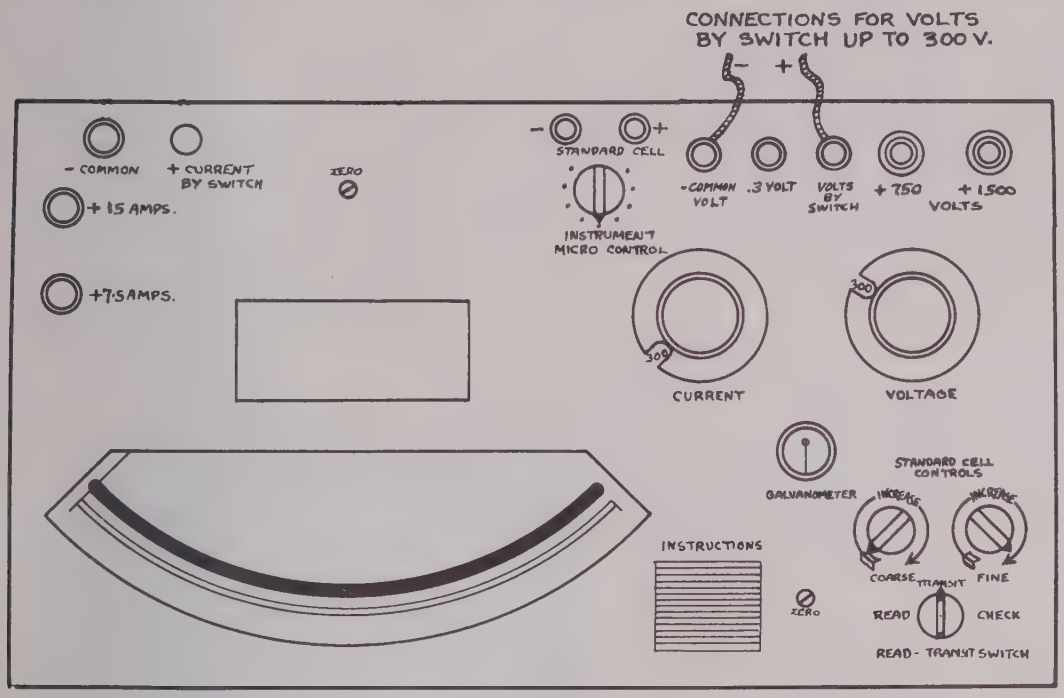
This range is usually used with our precision heavy current shunts. We obtain this range (.3 Volt) by using the (-common for Volts) binding post and the special (.3 Volt) binding post on its right. The selector switch can be in any position but in line with good instrument practice should be on their highest ranges.

STORAGE

If the instrument is to be stored for any appreciable length of time we suggest removing the Mallory battery, as there is always a possibility of fluid leakage, as the standard cell is completely sealed in glass it is removal is not recommended or desirable.

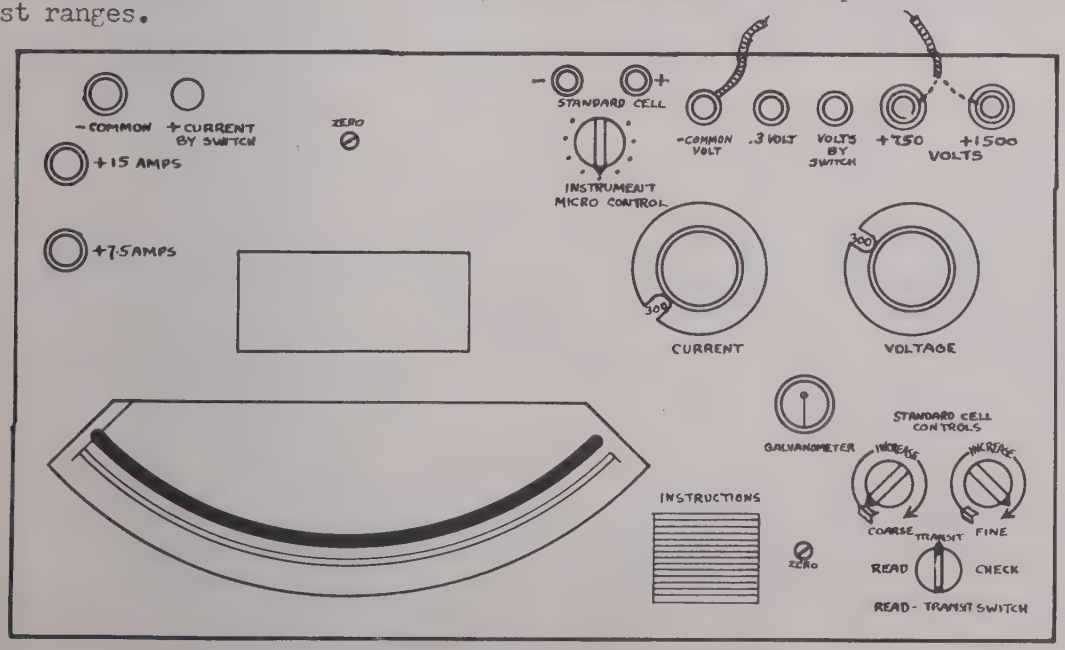
VOLTAGES FROM .75 TO 300 VOLTS (FULL SCALE)

Use the insulated "-Volt" binding post and the "+" insulated binding post to its immediate right. (See drawing below.) Voltage switch on desired range.



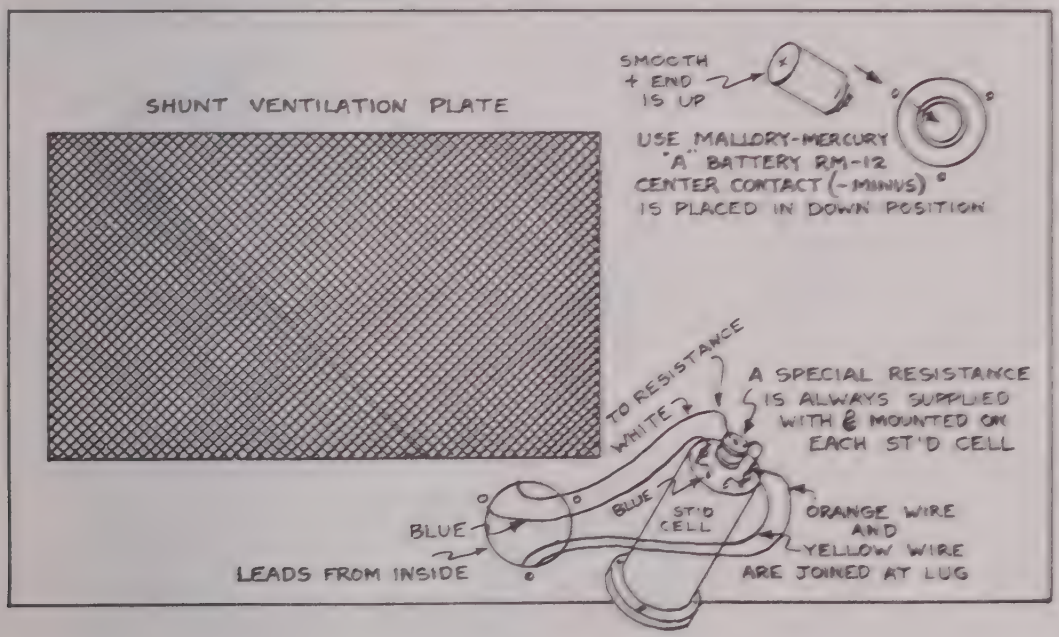
VOLTAGES OF 750 AND 1500 VOLTS

Use the same "-Volt" insulated binding post and the "750 or 1500 VOLT" highly insulated binding posts (see drawing below) it is suggested but not necessary that the current and voltage selector switches be placed on their highest ranges.



STANDARD CELL

The standard cell may be checked by measuring its voltage by means of a potentiometer connected to the "Standard Cell" binding posts. NaNot use a voltmeter of any sort. It should read within ±.02% at 25°C. of volts. If the standard cell voltage does not fall within these accuracy limits, it should be replaced. This is readily done by removing 3 screws from the round disc engraved "STANDARD CELL." Which is located on the bottom of the instrument. The cell is mounted on this disc. There are 4 colored wires leading to the cell and its resistance (see drawing below.) Replacement cells are supplied by us mounted on their cover discs. It is only necessary to reconnect the colored wires in their original position on the new cell-a matter of a few moments.


SHUNT VENTILATION PLATE
SMOOTH + END IS UP
USE MALLORY-MERCURY "A" BATTERY RM-12 CENTER CONTACT (-MINUS) IS PLACED IN DOWN POSITION
TO RESISTANCE WHITE
A SPECIAL RESISTANCE IS ALWAYS SUPPLIED WITH & MOUNTED ON EACH ST'D CELL
BLUE
ST'D CELL
BLUE
LEADS FROM INSIDE
ORANGE WIRE AND YELLOW WIRE ARE JOINED AT LUG

BATTERY

We use a small Mallory - Mercury "A" Battery #RM-12. This is replaced by removing 3 screws from the engraved battery cover. The new battery is placed in the revealed brass cylinder with its center contact down which is (-) negative. The battery should be replaced when the two standard cell control rheostats are required to be near their maximum increase positions for instrument full scale deflection.

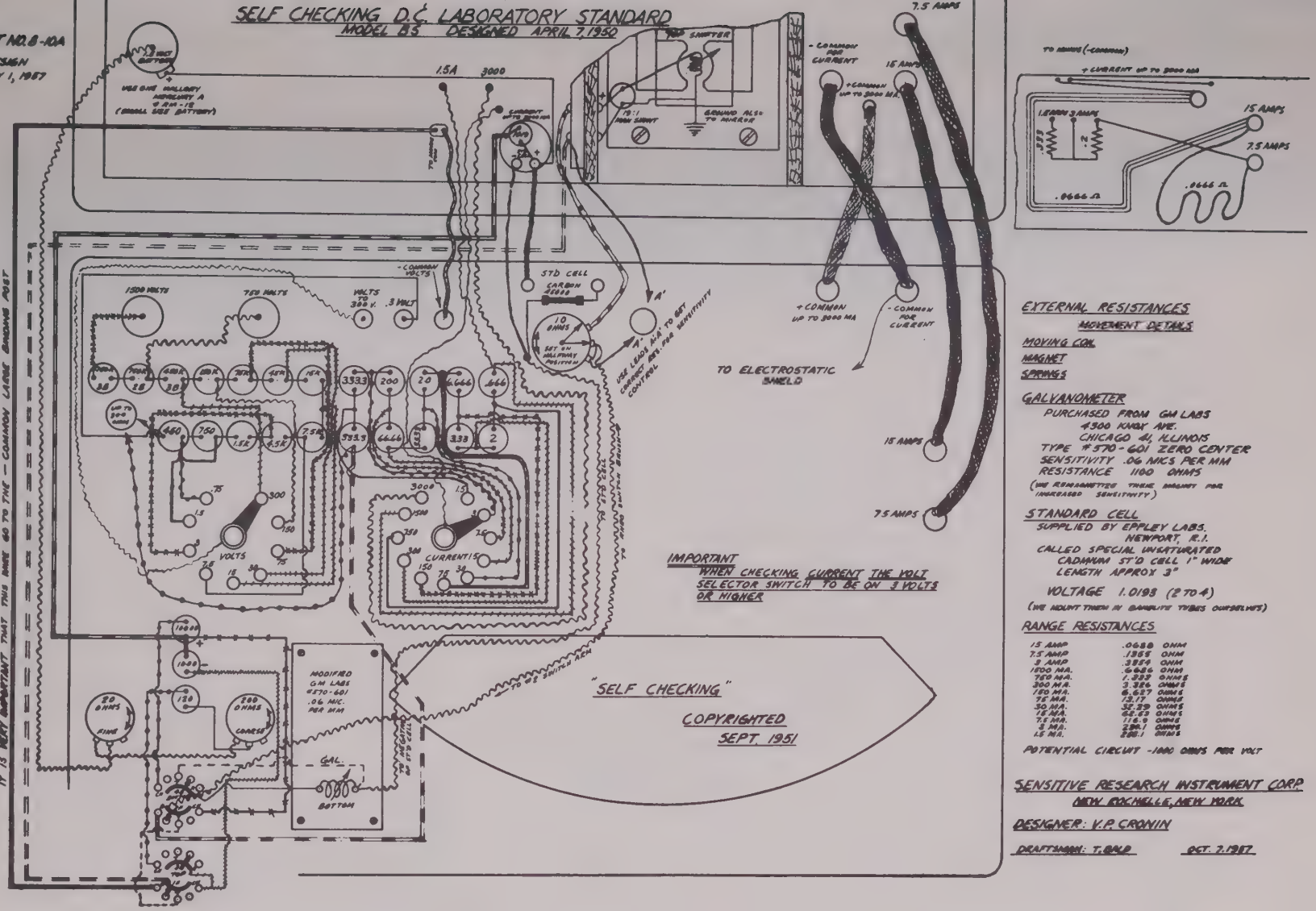
ACCURACY CHECK

Due to its unusual high accuracy, this instrument should be checked only against (ABS) absolute standard resistances and shunts and using an ABS adjusted precision potentiometer.

SELF CHECKING D.C. LABORATORY STANDARD

MODEL B3 DESIGNED APRIL 7, 1950

CIRCUIT NO. B-10A
NEW DESIGN
JANUARY 1, 1957



IMPORTANT
WHEN CHECKING CURRENT THE VOLT SELECTOR SWITCH TO BE ON 3 VOLTS OR HIGHER

"SELF CHECKING"

COPYRIGHTED
SEPT 1951

EXTERNAL RESISTANCES

MOVEMENT DETAILS

MOVING COIL
MAGNET
SPRINGS

GALVANOMETER

PURCHASED FROM GM LABS
4900 KNOX AVE.
CHICAGO 41, ILLINOIS
TYPE # 570-601 ZERO CENTER
SENSITIVITY .06 MICS PER MM
RESISTANCE 1160 OHMS
(WE REMAGNETIZE THESE MAGNET FOR INCREASED SENSITIVITY)

STANDARD CELL

SUPPLIED BY EPPLEY LABS.
NEWPORT, R.I.
CALLED SPECIAL UNSATURATED
CADMIUM ST'D CELL 1" WIDE
LENGTH APPROX 3"

VOLTAGE 1.0193 (2 TO 4)
(WE MOUNT THEM IN GAMOLITE TUBES OURSELVES)

RANGE RESISTANCES

15 AMP	.0688 OHM
7.5 AMP	.1365 OHM
3 AMP	.3359 OHM
1500 MA.	.6686 OHMS
750 MA.	1.333 OHMS
300 MA.	3.326 OHMS
150 MA.	6.627 OHMS
75 MA.	13.17 OHMS
30 MA.	32.39 OHMS
15 MA.	62.53 OHMS
7.5 MA.	116.9 OHMS
3 MA.	284.1 OHMS
1.5 MA.	580.1 OHMS

POTENTIAL CIRCUIT -1000 OHMS PER VOLT

SENSITIVE RESEARCH INSTRUMENT CORP.
NEW ROCHELLE, NEW YORK

DESIGNER: V.P. CRONIN

DRAFTSMAN: T. BALD OCT. 7, 1957

GENERAL INFORMATION

Upon receipt, your instrument should be carefully unpacked and examined for any visible external damage, i.e; split case, cracked glass, broken binding posts, etc. Place the instrument on a reasonably level bench. If the instrument has a wire shunting (across) the terminals, it should be removed. With the mechanical zero adjuster thumb knob, move the pointer both above and below the zero line of the scale. It should have sufficient travel to go a little beyond zero in each direction. Set the pointer exactly on zero while lightly tapping the instrument case with your fingers. The pointer will be correctly adjusted for zero when no reflection of the pointer's knife edge can be seen in the anti-parrallax mirror and the pointer is directly over and in line with the scale zero.

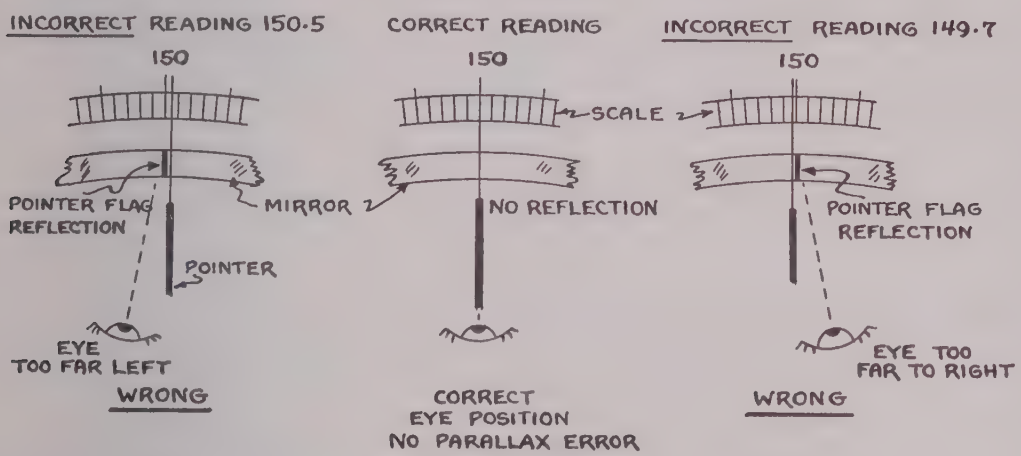


ILLUSTRATION OF THE ANTI-PARALLAX PRINCIPLE

The pointer indication should only be "read" when no reflection of its knife edge can be seen in the mirror below. This is only obtained when the eye is directly over the pointer. The drawings above illustrate the anti-parallax principle.

BALANCE TESTS FOR DIRECT CURRENT INSTRUMENTS

The general testing procedure for balance on all portable and panel instruments is the same, the difference being only in the degree of angle that the instrument is tipped from a horizontal position.

1. See that the pointer is set exactly on its zero position.

2. Now tip the instrument slowly up from the side farthest from you to an angular position as shown on the table below, and tap gently. The pointer should NOT move more than the amount shown on the table below.

3. Next, lay the instrument flat again and then tip it on its side, both left and right, and tap gently.

In both of these procedures, the instrument should be within its balance specifications. In general, these specifications are as follows:

DIRECT CURRENT INSTRUMENTS

MODEL	ACCURACY	ANGLE FROM HORIZONTAL	BALANCE GUARANTEE
UPP PANEL	.5 of 1%	90°	.5 of 1%
UP PANEL	1%	90°	.5 of 1%
J,JW,S, UNIVERSITY PORTABLE	.5 of 1%	25°	.5 of 1%
C PORTABLE	.25 of 1%	25°	.25 of 1%
B LAB. STANDARD	.1 of 1%	10°	.1 of 1%

FRICTION TESTS

The instrument may be tested for mechanical friction at this point, by connecting it to a suitable source of power and deflecting it at least 25% of full scale, then reducing the deflecting current to zero. No instrument should be accepted for use if it has any appreciable friction.

CALIBRATION CHECK

No actual calibration check should be made until the instrument has become thoroughly temperature saturated at ambient room temperatures for at least four hours. (Allowed to reach room temperature.) SENSITIVE RESEARCH calibrates all instruments at exactly 25° C.

Make sure you are on the right range for your power supply. If in doubt set the range switch if any, on the instrument, on its highest range. This will prevent overloading of the instrument when starting any electrical tests. If only a slight pointer deflection results when power is applied, then successively switch the instrument range selector DOWN until a suitable reading is obtained. Bring the pointer up to full scale and open the instrument circuit. A special precaution should be taken by the user of thermocouple instruments, and that is to AVOID opening the primary circuit of a transformer whose secondary circuit is being measured by thermocouple instruments. The reason for this is that the transformer as an energy storing device, may, under certain conditions, DISCHARGE its energy into the secondary circuit, thereby overloading the thermocouple instrument. (Overloads of 1000% are quite possible in transformer circuits.)

This danger can be eliminated by either disconnecting the instrument from the secondary circuit which can be turned to "zero" so that the excitation of any transformer primary may be reduced to "zero" before switching off.

The pointer should return to its original zero without tapping. If it returns to zero only when tapped, it indicates friction in the movement and possible damage to the pivots and jewels, possible through some severe shock in transit. For portable instruments with an overall accuracy of .5 of 1% or higher, and all high torque panel types, the pointer should return to exactly zero. Ultra high sensitivity instruments in the 1% class, and thermocouple instruments in the .75 of 1% class should have a maximum deviation from zero to no more than .1 of 1% of the physical length of the scale.

The pointer should then be deflected using controlled power slowly up and down the instrument scale. The pointer action should be smooth and there should be no sticking or hesitation at any point on the scale. Do not, however, mistake a rough spot in the controls of your power supply for a "stick" in the movement. Often, a badly regulated power supply or a loose circuit connection may make the instrument appear to have an internal variable. All instrument links and leads should be carefully attached and tightened.

The new instrument should be checked against an accurate standard on the cardinal points of the scale. Jus one word of CAUTION. Be careful that you do not place your new instrument and your standard too close together, especially with D.C. instruments. They may react magnetically on each other if your standard instrument is not magnetically shielded, it might indicate incorrect readings. Keep them at least six inches apart. Also, if the instrument was specially ordered for use on a steel panel (such information is printed on all our scales) then test it on a steel panel of the specified thickness.

Of all the things, that may be wrong when you get a new instrument, incorrect calibration is the LEAST likely; and if present at all, it will usually be caused by bad balance which you will already have detected by the test just covered. 99.99% of the instruments you receive, if they are satisfactory for balance, friction, stickiness etc., will also be well within their guaranteed accuracy.

NOTE:

Disassembly of the movement should not be attempted unless a skilled instrument man with calibration and scale drawing equipment are available.

CARE AND MAINTENANCE

All SENSITIVE RESEARCH instruments are individually assembled by skilled instrument makers and are INDIVIDUALLY calibrated. We do not calibrate instruments "en masse". Extreme care has been used in selecting pivots and shock mounted jewel bearings. In some instruments DIAMOND PIVOTS are used.

The instrument should be used and treated as a precision standard. A reasonable amount of care will bring its reward in a lifetime of accurate service.

Good practice dictates that periodic checks be made for pivot friction, coil, balance, scale calibration, and the mechanical integrity of any instrument.

If the instrument glass is cleaned by any method, the task should be completed by heavily breathing upon the glass so as to dissipate any electrostatic charges that may have been generated by friction. Occasionally the binding posts metal contact surfaces should be cleaned and brightened by the careful use of a fine sandpaper. A yearly coat of wax on any wooden instrument case is suggested.

Instrument panels are cleaned by using carbon tetrochloride to dissolve any greasy surface accumulations. A brisk rubbing with a soft flannel cloth will restore our moulded panels to their original lustre. Should the engraving "white" become discolored it can be removed with a sharp point and refilled with a white wax crayon material obtained from us.

OPERATIONAL PROCEDURE

1. Place the instrument on a level surface so that the scale is horizontal. Deviations of more than 5° from the horizontal may affect accuracy adversely.

2. For good instrument practice, the instrument should be kept away from any source of very strong magnetic fields. Maximum tolerable field is 5 oersted.

3. Set the pointer on zero by rotating the zero shifter, using thumb or zero screw. The pointer is correctly set on zero when the reflection of the pointer in the antiparallax mirror coincides with the pointer itself and with the zero line. (See general information sheets.) Page 4

4. For safety it is best to turn off the current or voltage to be measured before making connections to any instrument. Observing proper polarity, connect the instrument terminals in series with the circuit if current is to be measured.

   If voltage is to be measured then the voltmeter is to be in parallel to the portion of the circuit desired. It is important to remember that when an ammeter (current measuring instrument) is inserted in series with a circuit, the circuit is changed by the introduction of the ammeter resistance. Ammeters are therefore designed to be of low resistance so that they will only be a small fraction of the total resistance of a circuit.

   Remember also that when a voltmeter is connected across (in parallel) with a portion of a circuit it changes the potential difference by its own effect on the circuit and since it also is connected in parallel with a part of the circuit it reduces the effective resistance of that portion which increases in some degree the total current flowing in the complete circuit.

   Therefore voltmeters are designed to have the highest resistance possible so as not to change materially any circuit to which they may be applied.

5. It is considered good instrument practice in multirange instruments to have the range switch on the highest possible range and then the user can progressively switch down to the range that produces an acceptable reading. A good acceptable reading would be one in which the pointer is indicating in the upper fifth of the scale. (Nearly maximum deflection.) Apply power and observe pointer deflection. When the instrument pointer has come to rest, the current is indicated by the position of the pointer on the scale.

6. After the desired measurements have completed, turn off the current supply and disconnect the instrument terminals from the source of current. If the instrument leads are left connected and circuit changes made damage could result to the instrument being on a range setting lower than the newly applied power value.

SENSITIVE RESEARCH INSTRUMENTS have a data card attached to it or mounted in its case. This data card detailing the accuracy and electrical characteristics together with the instrument panel engraving will readily enable the user to operate our instruments to their full accuracy and their personal satisfaction.

SENSITIVE RESEARCH INSTRUMENT CORP. 310 MAIN STREET, NEW ROCHELLE N.Y., U.S.A.

SPARE PARTS LIST

MODEL SECTION

CUSTOMER CONTRACT NUMBER

ITEM NUMBER	PART NUMBER		DESCRIPTION	S.R.I.C. WILL REPAIR / CUSTOMER CAN REPAIR	PIECES PER ASSEMBLY	PIECE PRICE
	CUSTOMER PART NO.	S.R.I.C. PART NO.				
			WOODEN CASE PARTS - MODEL "BS"			
1		SR#2201	Wooden case and cover complete		1	$85.00
2		SR#BS-101	Wooden case adjustable feet - (Large)		4	10.00ea
3		SR#BS-102	Battery holder		1	20.00
4		SR#BS-103	Standard cell case		1	20.00
5		SR#BS-104	Shunt panel, complete with heavy current shunts		1	140.00
10		SR#BS-105	Screen for shunt panel (12"x8"x1.1/2")		1	2.00
11		SR#BS-106	Bakelite panel (22"x12.1/2"x1/2")		1	75.00
12		SR#BS-150	Range selector switches		2	24.00
13		SR#BS-155	Range selector switches		1	37.50
14		SR#BS-160	Potentiometer - 200 Ohms		1	7.00
19		SR#BS-161	Potentiometer - 20 Ohms		1	7.00
20		SR#BS-162	Potentiometer - 10 Ohms		1	7.00
21		SR#BS-170	Brass binding posts (Large)		2	7.00
22		SR#BS-171	Brass binding posts (Small)		2	5.00
23		SR#BS-172	Model SR Binding post		2	3.00
24		SR#BS-147	Binding post #47 with nuts and washers		5	.65

SENSITIVE RESEARCH INSTRUMENT CORP. 310 MAIN STREET, NEW ROCHELLE N.Y., U.S.A.

SPARE PARTS LIST

MODEL SECTION

CUSTOMER CONTRACT NUMBER

ITEM NUMBER	PART NUMBER		DESCRIPTION	S.R.I.C. WILL REPAIR	CUSTOMER CAN REPAIR	PIECES PER ASSEMBLY	PIECE PRICE
	CUSTOMER PART NO.	S.R.I.C. PART NO.					
			WOODEN CASE PARTS - MODEL "BS" (CONTD)				
25		SR#BS-165	Range selector switch knob			2	$ 7.50ea
26		SR#BS-166	Potentiometer control knobs			4	1.25 "
27		SR#BS-403	Zero screw and sleeve for instrument			1	4.50 "
28		SR#BS-404	Zero friction washer for instrument			1	.25 "
29		SR#BS-405	Zero cam and pin for instrument			1	2.25 "
34		SR#BS-220	Electropane glass galvonometer panel			1	2.00 "
35		SR#BS-185	Electropane glass instrument panel			1	6.00 "
36		SR#518	Glass clips			5	.15 "
37		SR#LE23	Instrument level			1	2.65 "
38		SR#BS-500	Poly connection block (inside of case)			1	5.00 "
43		SR#BS-550	Baseplate 12"x10.1/8"x7/16"			1	22.00
44		SR#BS-555	Sub baseplate			1	22.00
45		SR#BS-600	Sub baseplate pillar - 2.053x1/2"			6	2.50ea
46		SR#BS-601	Mirror pillar - 1.1/2"x1/2"			6	2.50 "
47		SR#BS-602	Galvanometer pillars - .845x5/16"			4	1.50 "
48		SR#BS-603	Case corner studs - 6"x3/16"			4	1.50 "

SENSITIVE RESEARCH INSTRUMENT CORP. 310 MAIN STREET, NEW ROCHELLE N.Y., U.S.A.

SPARE PARTS LIST

MODEL SECTION

CUSTOMER CONTRACT NUMBER

ITEM NUMBER	PART NUMBER		DESCRIPTION	S.R.I.C. WILL REPAIR / CUSTOMER CAN REPAIR	PIECES PER ASSEMBLY	PIECE PRICE
	CUSTOMER PART NO.	S.R.I.C. PART NO.				
			WOODEN CASE PARTS - MODEL "BS" (CONTD)			
49		SR#901	Heavy mirror		1	$25.00
50		SR#BS-180	Instrument scale (Blank)		1	10.00
51		SR#BS-201	Galvanometer scale (Blank)		1	2.50
52		SR#BS-200	Galvanometer		1	35.00
53		SR#BS-300	Mallory battery - RM 12 .		1	2.00
54		SR#BS-301	Standard cell mounted in case		1	30.00

SENSITIVE RESEARCH INSTRUMENT CORP. 310 MAIN STREET, NEW ROCHELLE N.Y., U.S.A.

SPARE PARTS LIST

MODEL SECTION

CUSTOMER CONTRACT NUMBER

ITEM NUMBER	PART NUMBER		DESCRIPTION	S.R.I.C. WILL REPAIR / CUSTOMER CAN REPAIR	PIECES PER ASSEMBLY	PIECE PRICE
	CUSTOMER PART NO.	S.R.I.C. PART NO.				
			MOVEMENT PARTS			
1		SR#501A	Pole piece (Diecast aluminum with steel polepiece inserts)		1	$21.50
2		Standard	Pole piece mounting screws (3/8"-6/32 Fillister head)		3	
3		SR#502A	Cockpiece frame, new type		1	12.75
4		SR#409	Cockpiece core, polished steel, for assembly with above)		1	6.00
5		SR#428	Cockpiece core fixing screws (5/8"-3/48 oval head)		2	.25ea
9		SR#411	Bridge connection lug		1	.05ea
10		Standard	Star washer # 2		1	.05"
11		Standard	Bridge connection lug screw (1/8"-2/56)		1	.05"
12		SR#709S	Model B spring mounted jewel		1	3.50
16		SR#414A	Bottom spring connector with insulating washers (assembly)		1	3.00
17		SR#425-6-7	Zero shifter with insulating washers (assembly)		1	3.00
18		SR#406	Jewel lock spring washer		2	.20"
19		SR#407	Jewel lock collar		2	.20"
20		SR#419	Pointer stop screw (Card 3/32" - 80 shoulder screw)		2	.30"
21		SR#420	Pointer striker (glass)		2	.20"

STANDARD - Readily obtainable

SENSITIVE RESEARCH INSTRUMENT CORP. 310 MAIN STREET, NEW ROCHELLE N.Y., U.S.A.

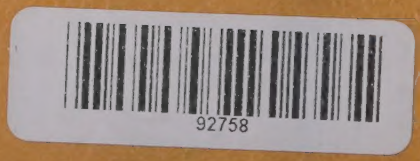
SPARE PARTS LIST

MODEL SECTION

CUSTOMER CONTRACT NUMBER

ITEM NUMBER	PART NUMBER		DESCRIPTION	S.R.I.C. WILL REPAIR / CUSTOMER CAN REPAIR	PIECES PER ASSEMBLY	PIECE PRICE
	CUSTOMER PART NO.	S.R.I.C. PART NO.				
			MOVEMENT PARTS (CONTD)			
22			Instrument complete moving coil assembly complete with pointers, springs, pivots and moving coil. Important - When ordering moving coil it is requested that you give instrument number if possible.		1	$47.00
26		DP 700	Diamond pivots		2	15.00ea
27			Pointer tubing .039" OD - 6" lengths first section		1	2.00"
28			Pointer tubing .030" OD - 6" lengths second section		1	2.00"
29			Movement hair springs, any strengths		2	1.00"
30			Top fitting. Holds pointer at balance weights			2.00"
31			Top fitting weights (Light and Heavy)		3 max	2.00) set)
32		SR#3203	Adjustable magnetic shunt assembly		1	

STANDARD - Readily obtainable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